

WHAT IS CLAIMED IS:

1. A thermally crystallized thermoplastic polymeric composition having a degree of thermally induced crystallinity of at least about 15%, said composition comprising:

a bulk polymer selected from the group consisting of PET, PEN, PETG, PCT, PCTA, PTT, and mixtures thereof, said bulk polymer optionally comprising up to about 10 wt% of a polyethylene based on the total weight of the bulk polymer;

an additive in a concentration from about 4 wt% to about 40 wt%, based on a total weight of the composition, comprising a substantially amorphous co-polymer of ethylene and an acrylate; and

a compatibilizer/emulsifier/surfactant (CES) in a concentration from about 0.1 wt% to about 8 wt%, based on the total weight of the composition, comprising a grafted or backbone co-polymer or ter-polymer of ethylene and a glycidyl acrylate or maleic anhydride, and optionally an acrylate selected from the group consisting of methylacrylate, ethylacrylate, propylacrylate, butylacrylate, ethylhexylmethacrylate, and mixtures thereof.

2. The thermoplastic polymeric composition of claim 1 wherein said bulk polymer comprises one or more linear or branched homo-polymers, co-polymers, recycled polyesters, or a mixture thereof.

3. The thermoplastic polymeric composition of claim 1 wherein said additive is selected from the group consisting of ethylene/methylacrylate co-polymer, ethylene/butylacrylate co-polymer, ethylene/ethylacrylate co-polymer, ethylene/ethylhexylmethacrylate co-polymer, and mixtures thereof, and optionally contains a core-shell toughener.

4. The thermoplastic polymeric composition of claim 3 wherein said additive co-polymer comprises from about 7 wt% to about 40 wt% of said acrylate, based on a total weight of said co-polymer.

5. The thermoplastic polymeric composition of claim 4 wherein said additive co-polymer comprises from about 17 wt% to about 35 wt% of said acrylate, based on the total weight of said co-polymer.
6. The thermoplastic polymeric composition of claim 1 wherein the concentration of said additive is from about 4 wt% to about 30 wt%, based on the total weight of the composition.
7. The thermoplastic polymeric composition of claim 6 wherein the concentration of said additive is from about 6 wt% to about 15 wt%.
8. The thermoplastic polymeric composition of claim 1 wherein said CES is selected from the group consisting of ethylene/glycidyl methacrylate co-polymer, ethylene/maleic anhydride co-polymer, ethylene/glycidyl methacrylate/methylacrylate ter-polymer, ethylene/ glycidyl methacrylate/ethylacrylate ter-polymer, ethylene/glycidyl methacrylate/butylacrylate ter-polymer, ethylene/glycidyl methacrylate/ethylhexyl acrylate ter-polymer, ethylene/maleic anhydride/methylacrylate ter-polymer, ethylene/maleic anhydride/ethylacrylate ter-polymer, ethylene/maleic anhydride/butylacrylate ter-polymer, ethylene/maleic anhydride/ethylhexyl acrylate ter-polymer, and mixtures thereof.
9. The thermoplastic polymeric composition of claim 8 wherein said CES concentration is from about 0.2 wt% to about 6 wt%, based on the total weight of the composition.
10. The thermoplastic polymeric composition of claim 1 wherein said CES comprises a co-polymer or ter-polymer having from 0 to about 40 wt% of said acrylate and from

about 0.1 to about 12 wt% of said glycidyl acrylate or maleic anhydride, based on a total weight of the co-polymer or ter-polymer.

11. The thermoplastic polymeric composition of claim 10 wherein said CES comprises a ter-polymer having from about 10 wt% to about 30 wt% of said acrylate.

12. The thermoplastic polymeric composition of claim 10 wherein said CES co-polymer or ter-polymer has from about 1 wt% to about 10 wt% of said glycidyl acrylate or maleic anhydride.

13. The thermoplastic polymeric composition of claim 1 wherein said bulk polymer comprises a blend of virgin and recycled polyesters.

14. The thermoplastic polymeric composition of claim 1 wherein said bulk polymer comprises a blend of at least two polyesters having different intrinsic viscosities.

15. The thermoplastic polymeric composition of claim 1 wherein said bulk polymer comprises at least one polyester having an intrinsic viscosity of less than about 0.95.

16. The thermoplastic polymeric composition of claim 15 wherein said intrinsic viscosity is less than about 0.90.

17. The thermoplastic polymeric composition of claim 16 wherein said intrinsic viscosity is less than about 0.85.

18. The thermoplastic polymeric composition of claim 17 wherein said intrinsic viscosity is less than about 0.80.

19. The thermoplastic polymeric composition of claim 18 wherein said intrinsic viscosity is about 0.5.

20. A food-grade thermoplastic polymeric composition having a degree of thermally induced crystallinity of at least about 15%, said composition comprising:

a bulk polymer selected from the group consisting of PET, PEN, PETG, PCT, PCTA, PTT, and mixtures thereof, said bulk polymer optionally comprising up to about 10 wt% of a polyethylene based on the total weight of the bulk polymer;

an additive in a concentration from about 4 wt% to about 15 wt%, based on a total weight of the composition, comprising a substantially amorphous co-polymer of ethylene and an acrylate; and

a compatibilizer/emulsifier/surfactant (CES) in a concentration from about 0.1 wt% to less than 4 wt%, based on the total weight of the composition, comprising a grafted or backbone co-polymer or ter-polymer of ethylene and a glycidyl acrylate or maleic anhydride, and optionally an acrylate selected from the group consisting of methylacrylate, ethylacrylate, propylacrylate, butylacrylate, ethylhexylacrylate, and mixtures thereof.

21. A layered thermoplastic polymeric composition comprising:

(a) a first thermoplastic polymeric layer having a degree of thermally induced crystallinity of at least about 15%, said first layer comprising:

(i) a bulk polymer selected from the group consisting of PET, PEN, PETG, PCT, PCTA, PTT, and mixtures thereof, said bulk polymer optionally comprising up to about 10 wt% of a polyethylene based on the total weight of the bulk polymer;

(ii) an additive in a concentration from about 4 wt% to about 40 wt%, based on a total weight of the composition, comprising a substantially amorphous co-polymer of ethylene and an acrylate; and

(iii) a compatibilizer/emulsifier/surfactant (CES) in a concentration from about 0.1 wt% to about 8 wt%, based on the total weight of the composition, comprising a grafted or backbone co-polymer or ter-polymer of ethylene and a glycidyl acrylate or maleic anhydride, and optionally an acrylate selected from the group consisting of methylacrylate, ethylacrylate, propylacrylate, butylacrylate, ethylhexyl methacrylate, and mixtures thereof; and

(b) a second polymeric layer laminated to or co-extruded onto the first layer.

22. The layered thermoplastic polymeric composition of claim 21 wherein said second polymeric layer is selected from the group consisting of PET, PEN, PETG, PCT, PCTA, PBT, PTT, and mixtures thereof.